West Indian Med J. 2015 Jul 16. doi: 10.7727/wimj.2014.315. [Epub ahead of print]

Carriage of Class 1 and Class 2 Integron in Multidrug Resistant Pseudomonas aeruginosa Isolated from Burn Patients in Tehran Hospitals, Iran.

Goudarzi M[1], Fazeli M[2], Azad M[3], Seyedjavadi SS[4], Mousavi R[5], Rashidan M[1], Azargashb E[6].
Author information

Abstract

OBJECTIVE:

To investigate the antimicrobial susceptibility patterns of Pseudomonas aeruginosa clinical isolates and their associations with existence of integrons.

METHODS:

During a 12-month study, 140 clinically significant Pseudomonas aeruginosa isolates were collected from patients hospitalized in the burn ward of Tehran. Pseudomonas aeruginosa isolates were identified using standard laboratory procedures. Antimicrobial susceptibility testing was performed for 13 antimicrobial agents according to the standard Kirby-Bauer disc diffusion method and Clinical and Laboratory Standards Institute (CLSI) guidelines. The frequency of class 1, 2 and 3 integrons was detected using a polymerase chain reaction (PCR) method.

RESULTS:

The resistance rates of Pseudomonas aeruginosa isolates to 13 antimicrobial agents were between 34.7% and 90.8%. Ceftriaxone and imipenem had good activity against the isolates. Of 140 tested isolates, 91 (65%) were multidrug resistant. The most predominant resistance profile among our isolates included resistance to 10 (12.14%), 9 (12.14%), 8 (12.14%) antibiotics. The most predominant resistance profile among isolates included resistance to 10 (12.14%), 9 (12.14%) and 8 (12.14%) antibiotics. Class 1 and 2 integrons were detected in 57.2% (56/98) and 30.6% (30/98) of tested P aeruginosa isolates, respectively. Of 98 (70%) integron positive isolates, only 12 (12.2%) isolates were positive for both the integrons. Resistance of the isolates to cefotaxime, aztereonam, imipenem, tobramycin, ticarcillin, ciprofloxacin and cloxacillin was observed to be significantly associated with the existence of integrons.

CONCLUSION:

These data confirmed high prevalence of Class 1 integrons among Pseudomonas aeruginosa isolated from burn patients in this study. Based on these results, integrons may play an important role in the possible transmission of resistance genes to the clinical Pseudomonas aeruginosa isolates